

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1           **Claim 1 (original):** Method for operating an automatic  
2       device (2) by means of an electronic directing system, said  
3       system comprising at least one first electrical cable  
4       (1,4,5,6) connected to at least one first signal generator  
5       (3,7,8) and at least one sensing system (11,12,13) arranged  
6       on said device (2), said sensing system (11,12,13)  
7       detecting at least one magnetic field being transmitted via  
8       said cable (1,4,5,6) and propagating through the air, the  
9       sensing system transmitting a processed signal to at least  
10      one driving means which contributes to the movements of  
11      said device in relation to a surface,

12           characterized in that said first signal generator  
13      (3,7,8) transmits a current through said first cable  
14      (1,4,5,6), said current during a part of time is in a state  
15      of rest were it is substantially constant, said state of  
16      rest periodically being interrupted by at least one first  
17      characteristic current pulse (20).

1           **Claim 2 (currently amended):** Method according to ~~any~~  
2      ~~of the preceding claims~~claim 1, characterized in that said  
3      sensing system (11,12,13) adapts the time intervals (28,29)

4        within which the system (11,12,13) detects magnetic fields  
5        based on the properties of said first current pulse (20).

1            **Claim 3 (original):**    Method according to claim 2  
2        characterized in that said adaptation refers to the  
3        synchronization of frequency at which said sensing system  
4        (11,12,13) operates, which is being made by said system  
5        (11,12,13) based on said first current pulse (20).

1            **Claim 4 (currently amended):** Method according to ~~any~~  
2        ~~of the claims 2 - 3~~claim 2, characterized in that said  
3        adaptation refers to the synchronization of said time  
4        intervals (28,29), which is being made by said sensing  
5        system (11,12,13), is based on the periodicity, time  
6        occurrence and/or the durability of said first current  
7        pulse (20).

1            **Claim 5 (currently amended):** Method according to ~~any~~  
2        ~~of the claims 2 - 4~~claim 2, characterized in that said time  
3        intervals (28,29) are being adapted so that the sensing  
4        system (11,12,13) is able to detect the presence of current  
5        pulses (20,22,24,26) transmitted from said directing  
6        system, said sensing system (11,12,13) during the await of  
7        the next pulse (20,22,24,26) to appear disregards pulses  
8        occurring outside said time intervals (28,29).

1           **Claim 6 (currently amended):** Method according to ~~any~~  
2   ~~of the preceding claims~~claim 1, characterized in that the  
3   current in each of said electrical cables (1,4,5,6) is  
4   being transmitted by one of said signal generators (3,7,8),  
5   said generator (3,7,8) synchronizing each current pulse  
6   (20,22,24,26) it transmits with other current pulses  
7   (20,22,24,26) in the search system, in that no current  
8   pulses (20,22,24,26) in the search system will occur at the  
9   same point of time within the same period (21).

1           **Claim 7 (currently amended):** Method according to ~~any~~  
2   ~~of the preceding claims~~claim 1, characterized in that the  
3   current in each of said electrical cables (1,4,5,6) is  
4   being transmitted by one of said signal generators (3,7,8),  
5   said generator (3,7,8) synchronizing each current pulse  
6   (20,22,24,26) it transmits with other current pulses  
7   (20,22,24,26) in the search system, in that the time  
8   distance between each current pulse (20,22,24,26) occurring  
9   in said search system is large enough so that signals  
10   generated in the sensing system (11,12,13) that originate  
11   from a current pulse (20,22,24,26) has partly decayed  
12   before generated signals that originate from another  
13   current pulse (20,22,24,26) occurs.

1           **Claim 8 (currently amended):** Method according to ~~any~~  
2   ~~of the preceding claims~~claim 1, characterized in said

3 current in more than one electrical cable (1,4,5,6) is  
4 transmitted from the same signal generator.

1 Claim 9 (currently amended): Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that said  
3 current has the same period (21) irrespective of the  
4 electrical cable (1,4,5,6) through which it is transmitted.

1 Claim 10 (currently amended): Method according to  
2 claim ~~[[9]]~~1, characterized in that the period (21) for the  
3 search system is selected by the user of the search system.

1 Claim 11 (currently amended): Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that every  
3 current pulse (22,24,26) has a by the search system defined  
4 time of occurrence adapted to said first current pulse  
5 (20).

1 Claim 12 (currently amended): Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that a  
3 transmitted current pulse (20,22,24,26) in each electrical  
4 cable (1,4,5,6) contains a course of events in time where  
5 the pulse is positive and negative in relation to said  
6 state of rest for the current.

1 Claim 13 (currently amended): Method according to ~~any~~

2     ~~of the preceding claims~~claim 1, characterized in that said  
3     first current pulse (20) has a pulse characteristic which  
4     differs from the characteristic of other current pulses  
5     (22,24,26) in the search system.

1             **Claim 14 (currently amended):** Method according to ~~any~~  
2     ~~of the preceding claims~~claim 1, characterized in that said  
3     sensing unit (11,12,13) detects the magnetic field  
4     (20,22,24,26) transmitted from at least one of said  
5     electrical cables (1,4,5,6) in the whole area in which the  
6     device is intended to operate.

1             **Claim 15 (currently amended):** Method according to ~~any~~  
2     ~~of the preceding claims~~claim 1, characterized in that at  
3     least one of said electrical cables (6) is connected  
4     directly to one of said other electrical cables (1).

1             **Claim 16 (currently amended):** Method according to ~~any~~  
2     ~~of the preceding claims~~claim 1, characterized in that the  
3     sensing unit (11,12,13) only detects the magnetic field  
4     transmitted from one of said electrical cables (1,4,5,6) in  
5     a part of the area in which the device is intended to  
6     operate.

1             **Claim 17 (currently amended):** Method according to ~~any~~  
2     ~~of the preceding claims~~claim 1, characterized in that at

3       least one signal generator (3,7,8) transmits information to  
4       the sensing system (11,12,13) through a selective change of  
5       the properties of an information current pulse (22,26) from  
6       period to period, said information current pulse (22,26)  
7       occurring in an electrical cable at a certain point of time  
8       in relation to the first current pulse (20).

1               **Claim 18 (original):** Method according to claim 17  
2       characterized in that said selective change of the  
3       properties for the information current pulse (22,26)  
4       constitutes in a choppy current direction.

1               **Claim 19 (original):** Method according to claim 17  
2       characterized in that said selective change of the  
3       properties for the information current pulse (22,26)  
4       constitutes in selectively inhibited current pulses.

1               **Claim 20 (original):** Method according to claim 17  
2       characterized in that said selective change of the  
3       properties for the information current pulse (22,26)  
4       constitutes in current pulses with selectively different  
5       pulse width.

1               **Claim 21 (currently amended):** Method according to ~~any~~  
2       ~~of the claims 17 - 20~~claim 17, characterized in that  
3       different operations are activated at the device (2) based

4 on said information, said operations for instance being a  
5 regulation of the movements of said device (2) across the  
6 surface in relation to an electrical cable (1,4,5,6).

1 **Claim 22 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that the  
3 sensing system (11,12,13) only detects current pulses  
4 (20,22,24,26) if they constitute[[s]] in magnetic field  
5 pulses with one essential field direction.

1 **Claim 23 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that the  
3 sensing system (11,12,13) detects the positive and negative  
4 flank of a current pulse (20,22,24,26), whereby the time  
5 distance between these two flanks settles the processing  
6 said system makes based on the detected flanks.

1 **Claim 24 (currently amended):** Method according to  
2 claim [[23]]1, characterized in that the sensing system  
3 (11,12,13) detects said flanks by detecting occurred  
4 voltage pulses.

1 **Claim 25 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that the  
3 sensing system (11, 12,13) with knowledge of said occurred  
4 voltage pulses (50/50') detects on which side of a cable

5 (1,4,5,6) at least a part of the device (2) is being  
6 positioned.

1 Claim 26 (original): Method according to claim 25  
2 characterized in that said detection refers the fact that  
3 the sensing unit (11,12,13) detects the magnetic field  
4 (50/50') which is being generated from at least one current  
5 pulse (45) and based on the properties (50/50') of said  
6 magnetic field detects on which side of a cable (1,4,5,6)  
7 at least a part of the device (2) is being positioned.

1 Claim 27 (currently amended): Method according to ~~any~~  
2 ~~of the claims 25 - 26~~claim 25, characterized in that said  
3 detection refers the fact that the sensing unit (11,12,13)  
4 detects the magnetic field (50/50') which is being  
5 generated from at least one current pulse (45) and based on  
6 the relation between at least one via said magnetic field  
7 (50/50') detected current pulse (45) and at least one via  
8 said magnetic field (50/50') detected state of rest detects  
9 on which side of a cable (1,4,5,6) at least a part of the  
10 device (2) is being positioned.

1 Claim 28 (currently amended): Method according to ~~any~~  
2 ~~of the claims 25 - 27~~claim 25, characterized in that the  
3 sensing unit (11, 12,13) detects on which side of a cable  
4 (1,4,5,6) at least a part of the device (2) is positioned



5 by generating an interpretation signal (T) based on the  
6 detected magnetic field, the characteristics of said  
7 interpretation signal being dependent on which side of said  
8 cable at least a part of the device (2) is being  
9 positioned.

1 **Claim 29 (original):** Method according to claim 28  
2 characterized in that the sensing system (11,12,13) with  
3 knowledge of the characteristics of the interpretation  
4 signal (T) operates the automatic device (2) in relation to  
5 a cable (1,4,5,6).

1 **Claim 30 (original):** Method according to claim 29  
2 characterized in that said characteristics refers to a  
3 pulse ratio corresponding to the time division between  
4 those occasions during which a characteristic signal pulse  
5 occurs and those occasions during which no such signal  
6 pulse occurs.

1 **Claim 31 (original):** Method according to claim 30  
2 characterized in that said pulse ratio has an asymmetric  
3 characteristic.

1 **Claim 32 (currently amended):** Method according to ~~any~~  
2 ~~of the claims 29 - 32~~claim 29, characterized in that the  
3 sensing system (11, 12,13) based on the detection on which

4 side of a cable (1,4,5,6) at least a part of the device (2)  
5 is being positioned operates the automatic device (2) in  
6 relation to a cable (1,4,5,6).

1 **Claim 33 (currently amended):** Method according to ~~any~~  
2 ~~of the claims 29 - 32~~claim 29, characterized in that the  
3 operation refers to the fact that the device (2) is being  
4 manoeuvred to a certain side of a cable (1,4,5,6).

1 **Claim 34 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that said  
3 current pulse and/or voltage pulse and/or signal pulse  
4 refers to a square wave.

1 **Claim 35 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that pulse  
3 ratio, which corresponds to the time division between those  
4 occasions during which a characteristic current pulse  
5 occurs and those occasions during which no characteristic  
6 current pulse occurs, is asymmetric.

1 **Claim 36 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that the  
3 sensing unit (11,12,13) through detecting information from  
4 current pulses (20,22,24,26) or through detecting  
5 information from the user, activates an operation which

6 uses the knowledge said sensing system has about the  
7 electrical cable (1,4,5,6) collected by detecting  
8 additional information sent by the electrical cable  
9 (1,4,5,6).

1 **Claim 37 (original):** Method according to claim 36  
2 characterized in that said activation of an operation means  
3 that the device when approaching an electrical cable  
4 (1,4,5,6) substantially follows (31,32) said cable  
5 (1,4,5,6) in one of its extension directions.

1 **Claim 38 (currently amended):** Method according to ~~any~~  
2 ~~of the claims 36 - 37~~claim 36, characterized in that said  
3 activation of an operation means that the device when being  
4 within an area surrounded by an electrical cable (1,4,5,6)  
5 and approaches said cable (1,4,5,6) changes direction and  
6 moves (30) inside said area away from said cable (1,4,5,6).

1 **Claim 39 (currently amended):** Method according to ~~any~~  
2 ~~of the claims 36 - 38~~claim 36, characterized in that said  
3 activation of an operation means that a user via a control  
4 device can control the movements and/or treatment that the  
5 device is performing.

1 **Claim 40 (currently amended):** Method according to ~~any~~  
2 ~~of the preceding claims~~claim 1, characterized in that the

3       sensing system (11,12,13) transmits information.

1           **Claim 41 (original):**   Method according to claim 40  
2       characterized in that said transmitted information is being  
3       sent in the time interval between two occurring current  
4       pulses (20,22,24,26).

1           **Claim 42 (original):**   Electronic directing system  
2       operating an automatic device (2), said system comprising  
3       at least one first electrical cable (1,4,5,6) connected to  
4       at least one first signal generator (3,7,8) and at least  
5       one sensing system (11,12,13) arranged on said device, said  
6       sensing system (11,12,13) detecting at least one magnetic  
7       field being transmitted via said cable (1,4,5,6) and  
8       propagating through the air, the sensing system  
9       transmitting a processed signal to at least one driving  
10      means which contributes to the movements of said device in  
11      relation to a surface,

12           characterized in that said system comprises means by  
13      which said first signal generator (3,7,8) transmits a  
14      current through said first cable (1,4,5,6), said current  
15      during a part of time being in a state of rest were it is  
16      substantially constant, said state periodically being  
17      interrupted by at least one first characteristic current  
18      pulse (20).

1           **Claim 43 (original):**   Electronic directing system  
2       according to claim 42 characterized in that said current  
3       has the same period (21) irrespective of the electrical  
4       cable (1,4,5,6) through which it is transmitted.

1           **Claim 44 (currently amended):**       Electronic  
2       ~~search~~directing system according to ~~any of the claims 42 -~~  
3       ~~43~~claim 42, characterized in that every current pulse  
4       (22,24,26) has a by the search system defined time  
5       occurrence adapted to said first current pulse (20).

1           **Claim 45 (currently amended):**   Electronic directing  
2       system according to ~~any of the claims 42 - 44~~claim 42,  
3       characterized in that a transmitted current pulse  
4       (20,22,24,26) in each electrical cable (1,4,5,6) contains  
5       a course of events in time where the pulse is positive and  
6       negative in relation to said state of rest for the current.

1           **Claim 46 (currently amended):**   Electronic directing  
2       system according to ~~any of the claims 42 - 45~~claim 42,  
3       characterized in that said first current pulse (20) has a  
4       pulse width which differs from the pulse width of other  
5       current pulses (22,24,26) in the search system.

1           **Claim 47 (currently amended):**   Electronic directing  
2       system according to ~~any of the claims 42 - 46~~claim 42,

3 characterized in that said sensing unit (11,12,13) detects  
4 the magnetic field (20,22,24,26) transmitted from at least  
5 one of said electrical cables (1,4,5,6) in the whole area  
6 in which the device is intended to operate.

1 Claim 48 (currently amended): Electronic  
2 ~~searchdirecting~~ system according to ~~any of the claims 42~~  
3 ~~47~~claim 42, characterized in that at least one of said  
4 electrical cables (6) is connected directly to one of said  
5 other electrical cables (1).

1 Claim 49 (currently amended): Electronic  
2 ~~searchdirecting~~ system according to ~~any of the claims 42~~  
3 ~~48~~claim 42, characterized in that at least one of the  
4 electrical cables (1,4,5,6) is arranged above, within or  
5 below the surface which the device (2) is intended to move  
6 in relation to, said cable (1,4,5,6) thereby separates an  
7 inner area of said surface being surrounded by the cable  
8 (1,4,5,6) from an outside area outside said cable  
9 (1,4,5,6).

1 Claim 50 (currently amended): Electronic  
2 ~~devicedirecting system~~ according to ~~any of the claims 42~~  
3 ~~49~~claim 42, characterized in that the sensing unit  
4 (11,12,13) only detects the magnetic field transmitted from  
5 one of said electrical cables (1,4,5,6) in a part of the

6 area in which the device (2) is intended to operate.

1 Claim 51 (currently amended): Electronic  
2 ~~device~~directing system according to ~~any of the preceding~~  
3 ~~claims~~claim 42, characterized in that an automatic device  
4 (2) refers to a treating robot which comprises a treatment  
5 system for treating said surface.

1 Claim 52 (currently amended): Electronic  
2 ~~device~~directing system according to claim 51 characterized  
3 in that the treatment system is operated based on  
4 information received and/or stored for treatment operations  
5 by the sensing system (11,12,1 3).

1 Claim 53 (currently amended): Electronic  
2 ~~device~~directing system according to ~~any of the claims 51-~~  
3 ~~52~~claim 51, characterized in that said device relates to an  
4 automatic lawnmower, whereby said treatment system  
5 constitutes in knives cutting the plants growing on said  
6 surface.

1 Claim 54 (currently amended): Electronic  
2 ~~device~~directing system according to ~~any of the claims 51-~~  
3 ~~52~~claim 51, characterized in that said device relates to an  
4 automatic vacuum cleaner, whereby said treatment system  
5 relates to parts which a normal automatic vacuum cleaner is

6 equipped with for cleaning said surface, said parts for  
7 instance being a brush roller and a suction device.

1           **Claim 55 (currently amended):**           Electronic  
2 ~~device~~directing system according to ~~any of the claims 51 -~~  
3 ~~52~~claim 51, characterized in that said device relates to an  
4 automatic cleaning robot, whereby said treatment system  
5 relates to parts which a normal cleaning robot is equipped  
6 with for cleaning a surface, such as tools for wet  
7 cleaning.

1           **Claim 56 (new):** Method according to claim 1, wherein  
2 the automatic device comprises a treating robot that  
3 comprises a treatment system for treating said surface.